# General

## Guideline Title

Oral hygiene care for functionally dependent and cognitively impaired older adults.

## Bibliographic Source(s)

Johnson VB, Chalmers J. Oral hygiene care for functionally dependent and cognitively impaired older adults. Iowa City (IA): University of Iowa College of Nursing, John A. Hartford Foundation Center of Geriatric Nursing Excellence; 2011 Jul. 61 p.

## Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Research Dissemination Core. Oral hygiene care for functionally dependent and cognitively impaired older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center; 2002 Nov. 48 p.

# Recommendations

## Major Recommendations

Assessment Criteria

The following assessment criteria indicate patients who are likely to benefit the most from use of this evidence-based guideline:

- Elderly patients who have cognitive impairments or have neurological conditions
- Elderly patients who are functionally dependent
- Elderly patients who require assistance with performing daily oral hygiene
- Elderly patients who report having xerostomia (dry mouth)
- Elderly patients who are undergoing treatment that causes oral side effects (e.g., medication, anti-cancer therapy)
- Elderly patients who have chronic medical conditions that affect the mouth or teeth (e.g., diabetes, immunosuppressive conditions, Sjogren's syndrome)
- Elderly patients with swallowing and nutritional intake problems

Assessment Tools for Oral Hygiene Care

Several assessment tools are available for oral hygiene care:

- Oral Health Assessment Tool (OHAT). This is completed prior to implementing the Oral Hygiene Care guideline (see Appendix A.1 in the original guideline document).

- Assessment of Current Oral Hygiene. This is completed *along with* the OHAT to document the patient's current oral hygiene regimen (see Appendix A.2 in the original guideline document).
- Communication and Intervention Techniques for Oral Hygiene Care. This information facilitates assessment and care planning when used in conjunction with the OHAT and Assessment of Current Oral Hygiene (see Appendix A.3 in the original guideline document).

Description of the Practice

The proposed intervention for assisting with and providing oral hygiene care includes several parts:

A. Identification of factors that increase risk for oral problems
B. Baseline OHAT (see Appendix A.1 in the original guideline document)
C. Assessment of Current Oral Hygiene (see Appendix A.2 in the original guideline document)
D. Development of Oral Hygiene Care Plan (OHCP) (see Appendix A.4 in the original guideline document)
E. Description of oral hygiene practices for preventing oral diseases: general oral hygiene care strategies
    - Behavior/communication/dementia challenges
    - Dentures and denture-related oral lesions
    - Natural teeth
    - Xerostomia, hypersalivation, and swallowing difficulties
    - Palliative oral hygiene care

Factors That Increase Risk for Oral Problems

*Patient Factors to Consider*

1. Cognitive Impairment: Oral health generally declines when cognitive impairment progresses. When identifying older patients at greatest risk for plaque-related dental diseases, an assessment of the level of cognitive impairment must be made. Examples of commonly used, research-based tools include: the Mini-Mental Status Examination (MMSE), the Global Deterioration Scale (GDS) and a clock-drawing examination. These tests should be administered by a trained interviewer and placed in the patient's health record.
2. Disruptive Behavior/Resistance to Care: Oral hygiene care is often challenging even in the absence of resistive behavior. In order to assist with this challenge, specific communication techniques for use during oral hygiene care can be employed. The use of 'elder speak' should be avoided in order to minimize resistive behavior. This refers to the pitch and tone of voice that conveys a patronizing and infantilizing form of communication. Additional communication strategies are recommended (see Appendix A.3 in the original guideline document).
3. Functional Impairment: Functionally impaired adults may require assistive oral hygiene aids in order to maintain independence (e.g., modified toothbrush handles, electric toothbrushes). However, this group of dependent adults is at an increased risk for oral problems due to their limited physical dexterity and impaired sensory perceptions, which leads to reliance upon others for their care. Older patients can be assessed for level of dependency upon others through examination of instrumental activities of daily living (IADL) and activities of daily living (ADL).
4. Residence Location: The patient's location of residence influences the level of risk for oral diseases. For example, because institutionalized elders generally have more severe impairments than their community-dwelling counterparts and are generally dependent upon others for their care, they are at high risk for oral diseases.
5. Medication Use and Radiation Therapy: Medications and radiation used for the treatment of systemic diseases can also influence risk for oral problems due to various side effects. Some medications can cause adverse oral effects such as salivary gland hypofunction (SGH), xerostomia, gingival overgrowth, lichenoid reactions (change in oral tissue), tardive dyskinesia (oral musculature movements), and problems with speech, swallowing and taste. All are oral conditions that can compromise the effectiveness of daily plaque control and oral comfort. Most elderly patients are on multiple medications and are at an increased risk for oral problems because of the variety of side effects--especially xerostomia. It is often difficult to evaluate oral side effects from one particular drug when multiple medications are being used. Consultation between primary care practitioners and dental professionals is indicated for older patients using multiple medications and for elders receiving head and neck radiation.
6. Tobacco and Alcohol Use: Tobacco use has been estimated to account for over 90% of cancers in the oral cavity. It is also a major risk factor for periodontal disease. When tobacco is used in conjunction with alcohol, the risk for developing oral problems increases.
7. Attitude and Utilization of Dental Care: Perception of oral health, attitudes toward oral hygiene care, and dental-seeking behavior influences a patient's risk for oral problems. If there is a lack of perceived need for oral care, it is less likely to happen--whether it is daily oral hygiene or seeking regular, professional dental assessments and treatment.
8. Access to Dental Care: Patients who perceive the need for regular professional care, seek dental treatment, and are financially able to afford regular dental care are less likely to experience debilitating oral diseases in comparison to episodic dental care seekers. Patients who generally have regular preventive care are able to avoid extensive types of restorations and experience less oral disease. However, if

patients become too cognitively impaired to initiate and maintain such behaviors independently, they are then at an increased risk for developing oral diseases and conditions, similar to individuals of low socioeconomic status with decreased access to dental care.

*Oral-Related Factors to Consider*

1. Xerostomia and Salivary Gland Hypofunction (SGH): As mentioned previously, the presence of xerostomia or SGH is a major contributor to risk for oral diseases and problems. Low levels of saliva result in the oral environment becoming more acidic, and together with decreased buffering capacity, result in dental caries. Oral symptoms that indicate a problem is present with saliva include: difficulties with eating, swallowing, or speaking; changes in taste; burning or painful oral tissues; dry lips; unpleasant breath; microbial infections; tissue ulcerations; and swollen or red tongue. Other problems that can develop are new and recurrent caries and poor retention of dentures, which can lead to denture-related lesions. Many of the medications commonly taken by older adults can affect saliva and result in patients perceiving they have a dry mouth or SGH. Medications such as antipsychotics, antidepressants, sedatives, diuretics, antihypertensives, anti-Parkinson agents, narcotic analgesics, anticonvulsants, and antihistamines have some of the most severe dry mouth and SGH side effects (refer to Appendix B, Treatment Therapies With Potential Xerostomic Oral Side Effects, in the original guideline document). Fluid balance problems, stress, smoking, and caffeine are also related to decreased salivary flow. Medical conditions such as Sjogren's syndrome and other autoimmune diseases can directly cause dry mouth or SGH. In addition, older adults who have had radiation to the head and neck area as well as elders with Alzheimer's disease may also have a reduced flow of saliva.
2. Hypersalivation (sialorrhea): Some older adults experience an apparent increase in their salivary flow, which can be difficult to manage. Swallowing problems and problems with innervation of oral musculature can result in the accumulation and collection of saliva at the corners of the lips. Thus, older adults with neurological conditions such as Parkinson's disease or amyotrophic lateral sclerosis (ALS) can experience saliva pooling and dribbling or drooling. Likewise, cholinergic agents may have a similar effect. Medications can be prescribed in consultation with a prescribing practitioner to try and reduce saliva flow; however this is not routinely recommended because of the many other side-effects of such medications.
3. Swallowing Problems: Older adults with dysphagia may often appear to have excess saliva, but this is usually the result of their inability to retain contents in the oral cavity and swallow adequately. Because of the inability to clear the mouth of saliva or food adequately, debris may accumulate within the oral cavity. This "pocketing" or "pouching" of food and debris in the vestibule of the mouth encourages bacterial growth. When left undisturbed or when oral hygiene care is inadequate, the patient risks aspiration of debris and bacterial growth that is detrimental to oral and systemic health.
4. Periodontal Disease: Elderly individuals are at increased risk for periodontal disease because of lifetime disease accumulation. If periodontal disease has already begun, even in its mildest form, the lack of daily oral hygiene will exacerbate the condition. Once the disease has begun, it is difficult to manage without regular professional dental care, and most dependent elders do not have access to treatment. Another periodontal factor to consider is that dental treatment has increasingly included the placement of periodontal implants, which may be particularly challenging in the elderly. Accumulation of plaque and debris around implants leads to peri-implantitis, affecting the periodontium in a manner similar to periodontal disease. The treatment is therefore similar to treatment for periodontal disease and underscores the importance of daily oral hygiene for those with implants. As previously discussed, the connection between periodontal disease and systemic health is relevant, particularly for elderly persons. There is sufficient evidence to develop comprehensive care planning that includes oral assessment and hygiene when seeking the best possible patient outcomes.
5. Dental Caries: Tooth loss has decreased through the years, which means older adults will be in need of continued routine, regular dental care. Dental caries can develop on different parts of the tooth. Chewing surfaces have deep pits and fissures that are high risk areas for caries. Areas around former restorations are also at risk because of the 'unnatural' junction between tooth surface and filling or crown. Of greatest concern for elders is the development of root caries. Root caries develops quickly because the root surface is less resistant to decay due to being less mineralized than the crown of the tooth. Gingival recession exposes the root surface and precedes the development of root caries. In the presence of xerostomia, poor oral care, and a diet high in refined sugar and fermentable carbohydrates, this disease process can encircle the tooth and is difficult to restore.
   Fluoride is the most effective method for dental caries prevention. A low level of fluoride can be constantly maintained in the oral cavity from fluoridated drinking water and daily oral care products.

In general, if older persons have had previous oral disease, they are then more susceptible to oral problems when self-care is compromised.

Oral Health Assessment

Although numerous tools exist to assess various aspects of oral health, ones which are research-based and user-friendly for non-dental personnel are less plentiful. Most instruments require information be collected by self-report of the older person. These types of tools are thus not appropriate for use with cognitively impaired elders and would be difficult to modify without compromising validity of the instrument.

U.S. federal regulations mandate comprehensive assessments of each patient's needs and the development of a care plan to ensure a minimal level

of care in long-term care facilities receiving reimbursement through Medicare and Medicaid. The tools used to execute this process include the Minimum Data Set (MDS) and Resident Assessment Protocols (RAP). Each enables the staff to systematically assess conditions (including oral conditions) and determine the need for consultation and referral. The sections of the MDS pertaining to oral and dental status are minimal and may tend to overlook the health of oral tissues and the presence of xerostomia. Although this tool is used nationwide, the law and regulations do not provide consistent directions or training in how to conduct oral assessments using the MDS. Please review individual state variation that may occur with these regulations. In addition, implementing in-service training to enhance the accuracy and validity of such assessments should be considered.

The Brief Oral Health Status Examination (BOHSE) has been tested on cognitively-impaired and unimpaired elderly persons. It has been modified and utilized on a population of cognitively impaired older adults and found to be useful when used for oral assessments by certified nurses' assistants (CNAs) and nurses. The BOHSE contains a 'measurement' column that provides examiners with a description of how to assess the item without having to refer to a separate section elsewhere.

The BOHSE is an instrument used for screening purposes only. It is not a diagnostic tool and does not replace the need for a periodic examination by a professional dentist. Prior to using the BOHSE, staff should receive in-service education from a professional dentist or dental hygienist, School of Dentistry faculty, dentists in private practice, or dentists contracted to provide services to nursing homes.

The Oral Health Assessment Tool (OHAT) (see Appendix A.1 in the original guideline document) is a modification of the BOHSE. It should be completed prior to implementing an individualized oral hygiene care plan in order to reduce patients' risk for plaque-related oral diseases. Completing the OHAT will help health care professionals assess the patient's current oral status and factors which can contribute to risk for oral disease, thus making it possible to implement the most appropriate care plan for elderly individuals.

Assessment of Current Oral Hygiene Care

An assessment of the patient's current oral hygiene care is necessary (see Appendix A.2 in the original guideline document). By identifying the patient's self-care ability, health care providers can determine what level of care is necessary—whether it is just reminding, assisting, providing care, or palliative in nature. Information about current oral hygiene care aids (types of brushes and oral care products) and frequency of use is helpful in developing an oral care plan. The Assessment of Current Oral Hygiene Care can be used periodically throughout the implementation of the guideline to assist with monitoring the patient's oral hygiene regimen.

Development of Oral Hygiene Care Plan

An individualized OHCP (see Appendix A.4 in the original guideline document) will enable providers to focus on appropriate care for patients. A plan should be developed and routinely updated, as patients' cognitive or functional impairments, oral status or, self-care abilities may change.

The OHCP includes pertinent information about the patient's oral status; level of assistance needed with oral hygiene care; as well as the type of care necessary. Challenges encountered with the patient are also noted, in order to assist the provider with identifying strategies to employ when providing care.

Description of Oral Hygiene Practices for Preventing Oral Diseases: General Oral Hygiene Care Strategies

There are five sections included in the oral hygiene care strategies.

1. Behavior/Communication/Dementia Challenges
2. Dentures and Denture-Related Oral Lesions
3. Natural Teeth
4. Xerostomia, Hypersalivation, and Swallowing Difficulties
5. Palliative Oral Hygiene Care

A video and booklet are available with visual examples of many of the strategies described in the following sections (see Chalmers et al., 2002b in the reference section of the original guideline document for purchasing details).

1. Behavior/Communication/Dementia Challenges

| Challenge | Strategy | Action Required |
|---|---|---|
| Patient won't open mouth | • Assess ways to get oral hygiene care completed.<br>• Break peri-oral muscle-spasms and | • A backward-bent toothbrush can be used to break the perioral muscle spasm. Slide the toothbrush into the angle of the mouth and firmly hold it against the cheek to retract. Once the cheek |

| Challenge | Strategy | Action Required |
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| | gain access to the mouth.<br>• Keep the mouth open during oral hygiene care. | relaxes, better access to the mouth is possible.<br>• Use another toothbrush or mouth-prop (e.g., Open-Wide Plus®) to keep the mouth open.<br>• Enlist the assistance of another caregiver<br>• Use other techniques (e.g., rescuing, distraction, bridging) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Try oral hygiene care at another time of day when patient is more cooperative or in a more suitable environment. Document successful strategies in the patient's oral hygiene care plan. |
| Dentures can't be taken out or put in patient's mouth | • Assess ways to get oral hygiene care completed.<br>• Assess if there is any problematic behavior involved.<br>• Assess if there is any sign of tardive dyskinesia or other movement disorders.<br>• Discuss with other caregivers who look after the patient to see if they are more successful at denture care for this patient and see what they do. | • Enlist the assistance of another caregiver.<br>• Consult with medical and dental professionals concerning tardive dyskinesia or other movement disorder.<br>• Use other techniques (e.g., rescuing, distraction, bridging) (see Appendix A.3 in the guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Try oral hygiene care at another time of day when patient is less agitated or in a more suitable environment.<br>• See if other caregivers are more successful at denture care for this patient and observe what they do.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient refuses oral hygiene care | • Assess ways to get oral hygiene care completed.<br>• Assess the cause for refusal of oral hygiene care--environmental, pain, fear. | • Enlist the assistance of another caregiver.<br>• Use other techniques (e.g., task breakdown, rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Try oral hygiene care at another time of day when patient is more cooperative or in a more suitable environment.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient bites toothbrush/caregiver | • Assess ways to get oral hygiene care completed.<br>• Assess if the biting is of a behavioral origin or is a consequence of tardive dyskinesia or other movement disorder. | • Enlist the assistance of another caregiver.<br>• Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Have several toothbrushes on hand during oral hygiene care and let the patient chew on one brush while the caregiver cleans with another.<br>• Use a mouth-prop to keep the mouth open (e.g., Open-Wide Plus®).<br>• Attempt oral hygiene care at a time when the patient is more cooperative or in more suitable environment.<br>• Consult with medical and dental professionals concerning tardive dyskinesia or other movement disorder.<br>• Document successful strategies in the patient's oral hygiene care |

| Challenge | Strategy | Action Required plan |
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| Patient kicks or hits out | • Assess ways to get oral hygiene care completed.<br>• Assess the cause of the behavior--environmental, pain, fear. | • Attempt oral hygiene care at a time when the patient is more cooperative or in more suitable environment.<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Enlist the assistance of another caregiver.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient does not understand caregiver's directions about oral hygiene care | • Assess ways to get oral hygiene care completed. | • Enlist the assistance of another caregiver.<br>• Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient cannot rinse and/or spit and swallows all liquids/tooth-pastes | • Assess ways to get oral hygiene care completed.<br>• Assess the patient's abilities for rinsing, spitting, swallowing, etc.<br>• Assess the need for the use of toothpastes versus mouth rinses. | • Attempt strategies listed in Section 4, "Xerostomia, Hypersalivation and Swallowing Difficulties" (below), and document successful strategies in the patient's oral hygiene care plan.<br>• Enlist the assistance of another caregiver.<br>• Use a suction toothbrush. |
| Patient uses offensive language | • Assess the cause of the offensive language--environmental, pain, fear.<br>• Assess the feasibility of completing oral hygiene care at that time.<br>• Assess ways to get oral hygiene care completed. | • Ignore the offensive language and attempt oral hygiene care if no other signs of behavioral problems.<br>• Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Enlist the assistance of another caregiver.<br>• Try oral hygiene care at another time of day when patient is less agitated or in a more suitable environment.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient is agitated | • Assess the cause of the agitation--environmental, pain, fear.<br>• Assess ways to get oral hygiene care completed. | • Try oral hygiene care at another time of day when patient is less agitated or in a more suitable environment. Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Enlist the assistance of another caregiver.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient is tired or | • Assess if patient is sleepy or other | • Use other techniques (e.g., chaining, rescuing, distraction) (see |

| Challenge | Strategy | Action Required |
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| chair | condition exists--illness, pain, or resisting care because of other factors.<br>• Assess ways to get oral hygiene care completed. | Appendix A.3 in the original guideline document) or other ways to encourage participation.<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Try oral hygiene care at another time of day when patient is more alert.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient's head faces down toward chest | • Assess if other condition exists--illness, pain, or resisting care because of other factors.<br>• Assess ways to get oral hygiene care completed. | • Enlist the assistance of another caregiver.<br>• Do oral hygiene care as best as is possible from different positions.<br>• Investigate the success of use of different dental products such as toothbrushes, mouth rinses, spray bottles, suction toothbrushes, etc.<br>• Use other techniques (e.g., chaining, rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient's head moves around constantly | • Assess the cause of the behavior--environmental, pain, fear or resisting care.<br>• Assess ways to get oral hygiene care completed. | • Enlist the assistance of another caregiver.<br>• Use other techniques (e.g., rescuing, distraction) (see Appendix A.3 in the original guideline document).<br>• Try oral hygiene care as best as is possible from different positions or in a more suitable environment.<br>• Evaluate communication technique (e.g., avoid elder speak, approach at eye level).<br>• Investigate the success of use of different dental products such as toothbrushes, mouth rinses, spray bottles, etc.<br>• If required, discuss with patient and others involved, the need to hold the patient's head gently during oral hygiene care.<br>• Document successful strategies in the patient's oral hygiene care plan. |
| Patient forgets to do oral hygiene care | • Assess the best way to remind the patient to do oral hygiene care | • Use task-breakdown to break all the steps of the oral hygiene care task down into smaller steps and/or other techniques (see Appendix A.3 in the original guideline document).<br>• Write reminder notes for the patient if appropriate and helpful.<br>• The need for reminding about oral hygiene care should be documented in the patient's oral hygiene care plan. |
| Patient can do some oral hygiene but not all of the task | • Assess the patient's abilities to do oral hygiene care and if reminding or assistance is needed during different stages of the task. | • Use task-breakdown to break all the steps of the oral hygiene care task down into smaller steps and/or other techniques (Appendix A.3 in the original guideline document).<br>• Write reminder notes for the patient if appropriate and helpful.<br>• The parts of the oral hygiene care task that patients can do themselves should be documented in the oral hygiene care plan. |

2. Dentures and Denture-Related Oral Lesions

| Challenge | Strategy | Action Required |
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| Dentures require cleaning | • Physical cleaning is essential to ensure dentures are clean. | • Physical cleaning of dentures at least once daily or more frequently in a bowl or sink filled with water (or a washcloth placed in the bottom of the sink).<br>• Clean with soap, a hard nailbrush or denture brush, and change denture cup solution daily.<br>• Do not use toothpastes intended for natural teeth. They are too abrasive and scratch the acrylic surface.<br>• Chemical denture cleaner tablets or pastes can be used in addition to cleaning with soap and water; however, fizzing tablets are not necessary and can be misused by cognitively-impaired adults. |
| Dentures are dirty and covered in calculus | • Regular removal of calculus, debris and staining is essential. | • Dentures may be soaked at night or during the day in a solution of diluted white vinegar and cold water (50:50).<br>• Dentures may need professional and chemical cleaning by a dental professional. |
| Denture storage container is dirty | • Regular sterilization of denture storage containers is required. | • If necessary, dispose of the storage container.<br>• Weekly, or more frequently, physical cleaning of the denture storage container and then soaking in a solution of diluted 1:10 sodium hypochlorite (bleach) in tap water for 1 hour. Clean and rinse thoroughly with soap and water before using. |
| Dentures are not labeled with patient's name. | • All partial and full dentures should be labeled with patient's name. | • Permanent labeling of dentures by a dental professional inscribing the name on the outside surface of dentures. (This is the surface that can be seen by the caregiver when the dentures are being worn.)<br>• Temporary naming of dentures can be done by caregivers - very lightly sand the pink acrylic denture surface on the cheek side (not the fitting side), write initials or name with a permanent marker or dark pencil, cover with several layers of clear nail polish and allow to thoroughly dry. Temporary commercial kits are available from medical or dental suppliers. |
| Denture stomatitis - the soft tissue under where the denture sits is red/inflamed/painful/bleeding | • Regular cleaning and sterilization of dentures<br>• Annual examination by dentist to assess tissues, condition of denture (e.g., rough areas) and fit | • Physical cleaning of dentures at least once daily, or more frequently. Removal of dentures at night whenever possible.<br>• If not removed at night, dentures should be removed for an extended period during the day. Keep moist whenever dentures are not being worn in order to avoid distortion.<br>• Treatment must be done in consultation with a dental professional - dentures may require sterilization in diluted bleach, and an antifungal medication may need to be prescribed and placed inside the denture's fitting surface.<br>• Never use bleaching solutions on dentures containing metal as it will corrode the metal surface. |

| Challenge | Strategy | Action Required |
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| Angular cheilitis - the corners of the mouth are red/weeping/painful | • Treatment of fungal infection, if present<br>• Lubricating and protection of corners of mouth<br>• Attention to any denture-related problems | • Treatment must be done in consultation with a dental professional - antifungal cream may need to be prescribed and applied to the corners of the mouth. Apply lanolin or KY Jelly to corners of mouth several times daily to protect skin. Dentures may require treatment, especially if recurring angular cheilitis persists. |
| An ulcer is present under the denture | • Annual examination by dentist to assess tissues, condition of denture (e.g., rough areas) and fit<br>• Removal of cause of irritation to allow the soft tissue to heal | • Whenever possible, remove denture until ulcer is healed. Warm salt and water mouth rinses, sprays, or saturated gauze can be applied several times daily to ulcer.<br>• Monitor ulcer to make sure heals within approximately 10-14 days. If it does not appear to be healing, or increases in size, follow up with a dentist right away.<br>• Use of numbing gels or ointments must be carefully monitored and is not generally advised. |

3. Natural Teeth

Any recommendations pertaining to product use should be carefully considered when the patient is unable to comprehend instructions or is unable to adequately expectorate (spit) contents from the oral cavity without swallowing. Read all product labels and follow instructions as packaged.

| Challenge | Strategy | Action Required |
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| Broken teeth present, roots of teeth retained, brown areas and dark staining are evident on the white tooth crowns or on the exposed roots of the teeth | • Assessment of cause of broken teeth, retained tooth roots, and/or dark staining and brown areas by a dental professional.<br>• Assessment of caries risk status. | • Make an appointment with a dental professional to assess the broken teeth, retained roots, dark staining and brown areas.<br>• Consultation with medical professionals concerning medications causing xerostomia and staining (iron-based medications).<br>• Treatment as prescribed by the dental professional, which could include extraction or restoration of teeth or retained root tips, cleaning and/or scaling.<br>• Dental professional may require caregiver to incorporate specific preventive practices into oral care<br>  • Use of antimicrobial (chlorhexidine gluconate) gel or mouth rinse in spray bottles once daily for seven consecutive days a month (repeat monthly)<br>  • Use of fluoride products such as neutral |

| Challenge | Strategy | Action Required |
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| | | sodium fluoride gel or mouth rinse (prescribed) in a spray bottle monitored by a dental professional<br>• Do not use chlorhexidine and fluorides together as fluorides can interfere with the action of chlorhexidine - allow at least 1-2 hours between their use.<br>• Use of extra-strength fluoride toothpaste (prescribed) and monitored by a dental professional<br>• Monitoring and reduction of dietary sugar intake<br>• Use of products to help relieve dry mouth (see Section 5, "Palliative Oral Hygiene Care," below) |
| Patient reports pain with their teeth, OR their behavior indicates a possible dental problem (e.g., not eating, pulling at face or mouth, excessive grinding of teeth, biting on hand or object) | • Caregiver to briefly assess possible dental causes of pain<br>• Urgent assessment by a dental professional to determine any acute or chronic causes of oral pain<br>• Assessment of caries and periodontal disease risk status | • Caregiver can do a brief oral assessment.<br>• Appointment with a dental professional should be made to assess the pain and any dental problems in a timely fashion.<br>• Assist dental professional with history of the pain or behavior and other relevant medical and social history.<br>• Assist dental professional during the dental examination. |
| Large accumulations of food, plaque, and calculus around the teeth, bleeding gums | • Assessment of periodontal condition by a dental professional<br>• Assessment of periodontal disease risk status<br>• Assessment of patient's oral hygiene and swallowing abilities and care needs. Caregiver uses adjunctive chemical and physical oral hygiene strategies. | • Appointment with a dental professional should be made to assess the periodontal condition<br>• Treatment as prescribed by a dental professional, which may include debridement of plaque and scaling calculus from teeth<br>• Dental professional may require caregiver to incorporate specific preventive practices into regular oral hygiene care -<br>• Use of antimicrobial (chlorhexidine gluconate 0.12%) gel or mouth rinse (prescribed) in spray bottle (once daily for seven consecutive days a month; repeat monthly)<br>• Do not use chlorhexidine and fluorides together as fluorides can interfere with the action of chlorhexidine - allow at least 1-2 hours between their use.<br>• Use of modified dental equipment (e.g., bicycle handle on toothbrush, triple-head toothbrush (Surround Toothbrush®), backward-bent toothbrush, electric toothbrush or oral irrigator<br>• Increased assistance with, or supervision of, oral hygiene care-- including the use of task breakdown strategies (see Section 1, "Behavior/Communication/ |

| Challenge | Strategy | Action Required |
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| | | Dementia Challenges," above)<br>• Use of products to help relieve dry mouth (Section 5, "Palliative Oral Hygiene Care," below) |
| Bad breath (halitosis) | • Assessment of periodontal condition by a dental professional and possible cleaning<br>• Assessment of gastrointestinal problems by a medical professional<br>• Assessment of patient's oral hygiene abilities and needs<br>• Caregiver uses adjunctive chemical and physical oral hygiene strategies | • Appointment with a dental professional should be made to assess the halitosis.<br>• Dental professional may require caregiver to incorporate specific preventive practices into regular oral hygiene care. For example, tongue brushing; assessment of food retention, xerostomia, active oral/dental infection.<br>• Use of antimicrobial (chlorhexidine gluconate 0.12%) gel or mouth rinse (prescribed) in spray bottle (once daily for seven consecutive days a month; repeat monthly)<br>• Do not use chlorhexidine and fluorides together as fluorides can interfere with the action of chlorhexidine - allow at least 1-2 hours between their use. |
| Tongue is black or darkly coated | • Assessment of tongue by a dental professional and possible cleaning of tongue<br>• Caregiver uses adjunctive chemical and physical oral hygiene strategies | • Appointment with a dental professional should be made to assess the tongue.<br>• Dental professional may require caregiver to incorporate specific preventive practices into regular oral hygiene care<br>• Physical cleaning of the tongue with a toothbrush or tongue-cleaning kit |
| Grinding of teeth or dentures | • Assessment of tooth-grinding by a dental professional<br>• Assessment of risk factors for tooth-grinding. | • Appointment with a dental professional should be made to assess the tooth grinding.<br>• Investigation by medical and dental professionals into possible causes of tooth grinding:<br>• Discomfort or pain<br>• Tardive dyskinesia caused by neuroleptic medications, and adverse movement effects of other medications<br>• Occlusion of natural teeth and dentures<br>• Temporomandibular joint (TMJ) dysfunction<br>• Evaluation by dentist for possible fabrication of occlusal guard or night guard to help protect teeth and minimize tooth wear |

4. Xerostomia, Hypersalivation, and Swallowing Difficulties

| Challenge | Strategy | Action Required |
|---|---|---|
| | | |

| Challenge | Strategy | Action Required |
| --- | --- | --- |
| Patient cannot swallow well and chokes on liquids and foods, and may be fed via a parenteral tube into the stomach (PEG) | • Assessment of swallowing problems, drooling, and oral hygiene care needs<br>• Evaluation of current levels of plaque accumulation and aspiration risks<br>• Assessment of dental products and dental aids to help with oral hygiene care<br>• Improvement of caregiver's knowledge of increased risks for aspiration pneumonia with the accumulation of plaque for 7+ days<br>• See dentist frequently. | • Consultation with speech therapist and dental professional about swallowing problem and oral hygiene care needs<br>• Use of modified oral hygiene care techniques (e.g., suction toothbrush, swabbing mouth with gauze soaked in chlorhexidine, toothbrushing without toothpaste, use of backward-bent toothbrush to break muscle spasms, use of chlorhexidine gluconate 0.12% and/or fluoride mouth rinses in small spray bottles (both prescribed)<br>• Do not use chlorhexidine and fluorides together as fluorides can interfere with the action of chlorhexidine - allow at least 1-2 hours between their use<br>• Use of two or more staff to do oral hygiene care<br>• Use of suction to regularly remove excessive drooling, and use of suction during oral hygiene care<br>• Regular review of oral hygiene care needs and aspiration risks |
| Patient's mouth feels dry – food can't be chewed well, tongue is swollen and red, oral tissues are dry and red, speech is affected, burning or painful oral tissues | • Assessment of dry mouth<br>• Assessment of medications<br>• Use saliva substitutes or stimulants<br>• Change of diet: avoid spicy, acidic, sticky, hard, dry foods<br>• Increase fluid intake.<br>• Eliminate sugar-containing lozenges, mints or candies<br>• Eliminate smoking, alcohol, caffeine<br>• Eliminate alcohol-containing dental products<br>• See dentist frequently | • Assessment of dry mouth and medications in consultation with medical and dental professionals regarding consideration of drugs with less drying effect, timing or frequency of dose.<br>• If required, a softer diet with increased fluids may be recommended.<br>• Avoid alcohol.<br>• Use of saliva substitutes<br>• Use of toothpastes and mouth rinses without alcohol or added detergents and flavors, chlorhexidine gluconate 0.12% rinse (prescribed)<br>• Use of prescription strength fluoridated toothpaste, gel, or rinse or MI Paste (prescribed) for prevention of caries if swallowing can be avoided.<br>• Use of water or mouth moisturizing rinses in spray bottles. Spray on tongue and oral tissues. (e.g., Optimoist®, Xerolube®, MouthKote®).<br>• Allow crushed ice to melt in the mouth.<br>• Chew sugar-free gum or lozenges (esp. xylitol sweetened) to stimulate saliva when appropriate and prevent caries. (e.g., Oral Balance/Biotene® products, Spry gum, SalivaSure®).<br>• Use of humidifier by the bed at night<br>• Use of lanolin, KY Jelly or similar lubricants on lips<br>• Prescription use of pilocarpine drops to stimulate saliva after consultation with medical and dental professional to consider all risks and benefits to patient |
| Patient has excessive saliva and is drooling | Assessment of any swallowing problems and | • Referral for an assessment of any swallowing problems<br>• Prompting to swallow, keep mouth closed, and flexing head |

| Challenge | Strategy | Action Required |
| --- | --- | --- |
| | levels of drooling. | forward when swallowing<br>• Maintaining upright position when feasible<br>• Discussion of possible modifications of medications with medical and dental professionals to minimize oral side effects<br>• Use of suction to remove excessive drooling<br>• Use of protective clothing for drooling |

5. Palliative Oral Hygiene Care

When patients are in the final stages of an illness or are undergoing complex medical treatment, their mouths can become very dry and painful from the medical treatments and associated medications being used (e.g., chemotherapy, radiation, immunosuppression, behavior and pain control medications). As a result, regular oral hygiene care may need to be modified due to fragile oral tissues, discomfort, and the inability to adequately swallow. Palliative oral care is important for maintaining oral health and oral comfort.

Oral care is most effective when the patient can be in a semi-upright position to avoid choking or aspiration of bacteria or debris. Patients are at higher risk for developing lung infections when sedentary or lying flat for extended periods. When positioning is not possible, care should be taken to avoid collection of fluids in the oral cavity or aspiration. Refer to Section 4, "Xerostomia, Hypersalivation and Swallowing Difficulties," above, to assist with specific challenges. Maintaining moisture in the oral cavity and lips is extremely important for comfort of patients receiving palliative care.

- If the oral tissues of the tongue, cheeks, gums, and lips are very swollen, inflamed, red, painful or ulcerated, they can easily tear. A mouth rinse can be comforting when gently swabbed or sprayed into the mouth with a small atomizer or spray bottle. When swallowing is difficult, remove excess fluid to avoid choking.
    - ½ teaspoon salt and ½ teaspoon baking soda in 8 oz of water for relief of oral burning sensation. When not properly diluted, these can be unpleasant and less effective for their intended use.
    - Alcohol-free chlorhexidine gluconate or mouth rinse (prescribed) to stop superinfection and help with plaque control (may need to be diluted 50/50 with sterile saline only immediately before each use if burns soft tissue)
    - Biotene dry mouth relief products (toothpaste, mouthwash) to coat sore oral soft tissues.
    - Prescription strength fluoridated toothpaste or gel or MI Paste to protect teeth from caries
        - Do not use hydrogen peroxide, thymol, alcohol-containing oral care products, or other harsh mouth rinses as they can burn and further damage oral tissues. Do not use topical analgesic gels, and do not use lemon and glycerine swabs as they will further dry the oral tissues.
        - Any excessive nasal and oral secretions can be removed using gauze firmly wrapped and secured around a toothbrush that has been soaked in chlorhexidine gluconate 0.12% (prescribed).
        - To lubricate and protect the oral tissues, KY Jelly, MI paste (prescribed; if no true milk allergy), or Biotene gel can be rubbed all over the tongue, cheeks and gums. Lanolin can be rubbed on or applied to the lips. Lanolin (Lansinoh) is for external use only.
        - Dentures may need to be removed and not worn. Keep dentures in solution when not being worn. If worn, coat tissue surface of denture with Biotene gel or MI paste (prescribed), to act as an artificial saliva and lubricant.
- Use moisturizing/dry mouth relief products that can reduce oral dryness.
- Changes in taste can occur and should be discussed with a prescribing practitioner as they can be treated with zinc formulations to restore or enhance taste perception.
- There are several bacterial and viral infections that patients may develop. These need appropriate medications prescribed by a prescribing practitioner.
    - There are several types of fungal (candidal) infections that may develop in older persons:
        - Denture stomatitis under dentures - (See Section 2, "Dentures and Denture-Related Oral Lesions," above).
    - Angular cheilitis. This appears as fissures of white and red lesions originating at the corners of the mouth. Clean the corners daily with antibacterial soap and apply antifungal medication as prescribed. Keep lips lubricated by rubbing lanolin on the lips (see Section 2, "Dentures and Denture-related Oral Lesions" above).
    - Acute "thrush" (pseudomembranous oral candidiasis). This appears as white or yellow patches that can be rubbed off to reveal red, raw tissue. This coating can be found in mouth and/or throat or on the tongue. Treating the above types of infections are always done in consultation with a prescribing practitioner.
    - In general, when treating these conditions topically:
        - "Azole" drugs can be used (such as miconazole, ketoconazole, or clotrimazole).
        - "Nystatins" medications: these suspensions do not stay in the mouth for long, so if used, they may need to be applied by mixing the drops with a sugarless fruit juice or KY Jelly. Nystatin troches can also be used.

## Clinical Algorithm(s)

None provided

# Scope

## Disease/Condition(s)

Oral problems and plaque-related oral diseases

## Guideline Category

Evaluation

Management

Prevention

Risk Assessment

## Clinical Specialty

Dentistry

Geriatrics

Nursing

## Intended Users

Advanced Practice Nurses

Allied Health Personnel

Dentists

Health Care Providers

Nurses

Physicians

## Guideline Objective(s)

To present practical information for health care providers and caregivers in the provision and documentation of oral hygiene care for functionally dependent and cognitively impaired older adults

## Target Population

Older adults who are functionally dependent and cognitively impaired

## Interventions and Practices Considered

1. Identification of risk factors that increase oral health problems
2. Baseline oral health assessment
3. Current oral health assessment
4. Development of an oral hygiene plan
5. Implementation of oral health care practices for preventing oral diseases and general hygiene care strategies for:
    - Behavior/communication/dementia problems
    - Dentures and denture-related oral lesions
    - Natural teeth
    - Xerostomia, hypersalivation and swallowing difficulties
    - Palliative oral hygiene care

## Major Outcomes Considered

Risk for plaque-related oral diseases

# Methodology

## Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

## Description of Methods Used to Collect/Select the Evidence

Databases

Searches were performed using electronic database searching and hand searching of references of peer-reviewed journal articles, textbooks, and national guidelines. Electronic databases included National Library of Medicine and PubMed. Hand-searched reference lists in peer-reviewed journal articles provided additional sources for reviewing the literature. A new edition of the textbook (Harris et al., 2009) previously used in the original guideline and a textbook (MacEntee, 2010) recommended by an expert reviewer (Lacey, EM) was also included. A current edition of Lexi-comp Drug Information Handbook provided updated pharmaceutical and generic brand labeling and drug classifications. National guidelines from the World Health Organization, the Department of Health and Human Services and the Institute of Medicine (recommended by an expert reviewer, Jablonski, RA) were also evaluated and accompanying references reviewed.

Keywords

The following search terms were used:

*mouth/oral care; oral infections/diseases: systemic disease, risk factors; aspiration pneumonia: mortality, risk factors; ventilator associated pneumonia: oral/dental; dysphagia: aspiration pneumonia*

*xerostomia/dry mouth; xerostomia: radiation, medications; xerostomia/dry mouth: oral assessment; xerostomia/dry mouth: saliva substitutes; xerostomia/dry mouth: oral lubricants, irritants; xerostomia/dry mouth: caries risk, xylitol; oral mucositis; salivary dysfunction: systemic disease*

*mouth/oral care: critically ill; mouth/oral care: palliative; mouth/oral care: intensive care; mouth/oral care: swab, toothbrushes; mouth/oral care: nursing home residents, long-term care, hospital, protocol; oral hygiene care; oral assessment*

*oral health: elderly, frail elderly, dementia, cognitively-impaired; cognitive impaired: behavior difficulties; oral/mouth examination: resistive behavior; oral hygiene care: dementia; oral health: functional dependence, physical impairment*

*oral status: well being, quality of life; oral health related quality of life; oral health: weight loss, nutrition; oral health: elderly, long-term*

*care; oral disease: quality of life; oral health: community-dwelling elderly, residence*

*denture care, denture stomatitis; oral care: edentulism; tooth loss: elderly;*

*periodontal disease: systemic disease; periodontal disease: diabetes; periodontal disease: cardiovascular disease, stroke, CVA*

Inclusion and Exclusion Criteria

The database searches were limited to year of publication (2000-present), research, peer reviewed, published, English only articles.

## Number of Source Documents

Number of documents identified: 132

Number of documents used: 65 (includes 48 references from the previous guideline)

## Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

## Rating Scheme for the Strength of the Evidence

Not applicable

## Methods Used to Analyze the Evidence

Review

## Description of the Methods Used to Analyze the Evidence

Not stated

## Methods Used to Formulate the Recommendations

Expert Consensus

## Description of Methods Used to Formulate the Recommendations

Experts in the subject of the proposed guideline are selected by the Research Translation and Dissemination Core to examine available research and write the guideline. Authors are given guidelines for performance of the systematic review of the evidence and in critiquing and weighing the strength of evidence.

## Rating Scheme for the Strength of the Recommendations

Not applicable

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

### Method of Guideline Validation

External Peer Review

### Description of Method of Guideline Validation

This guideline was reviewed by two experts knowledgeable about research on oral hygiene and development of evidence-based practice guidelines. The reviewers suggested additions and changes in the guideline to enhance its accuracy and clinical utility.

## Evidence Supporting the Recommendations

### Type of Evidence Supporting the Recommendations

The type of evidence is not specifically stated for each recommendation.

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

A well-maintained mouth will properly function with adequate speech, initiation of the alimentation process, protection of the host/individual from disease, and maintenance of systemic health.

Subgroups Most Likely to Benefit

The following assessment criteria indicate patients who are likely to benefit the most from use of this evidence-based guideline:

- Elderly patients who have cognitive impairments or have neurological conditions
- Elderly patients who are functionally dependent
- Elderly patients who require assistance with performing daily oral hygiene
- Elderly patients who report having xerostomia (dry mouth)
- Elderly patients who are undergoing treatment that causes oral side effects (e.g., medication, anti-cancer therapy)
- Elderly patients who have chronic medical conditions that affect the mouth or teeth (e.g., diabetes, immunosuppressive conditions, Sjogren's syndrome)
- Elderly patients with swallowing and nutritional intake problems

### Potential Harms

Oral side effects of chlorhexidine gluconate can be calculus formation, and staining of tooth surfaces, tooth-colored dental fillings, and the tongue. Also, there is potential for altered taste sensation, burning sensation, and irritated oral mucosa. Currently, this product is only dispensed by a prescribing practitioner and its use should be monitored. Alcohol-free formulations are strongly recommended for patients with xerostomia.

## Contraindications

### Contraindications

- Do not use chlorhexidine and fluorides together as fluorides can interfere with the action of chlorhexidine - allow at least 1-2 hours between their use.
- Prescription strength fluoride is contraindicated for those unable to follow directions or expectorate adequately or tend to swallow inadvertently.

- MI Paste is contraindicated if a true milk allergy exists; lactose intolerance is not a contraindication.

# Implementation of the Guideline

## Description of Implementation Strategy

An implementation strategy was not provided.

## Implementation Tools

Audit Criteria/Indicators

Chart Documentation/Checklists/Forms

Pocket Guide/Reference Cards

Quick Reference Guides/Physician Guides

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

# Institute of Medicine (IOM) National Healthcare Quality Report Categories

## IOM Care Need

Getting Better

Staying Healthy

## IOM Domain

Effectiveness

Patient-centeredness

# Identifying Information and Availability

## Bibliographic Source(s)

Johnson VB, Chalmers J. Oral hygiene care for functionally dependent and cognitively impaired older adults. Iowa City (IA): University of Iowa College of Nursing, John A. Hartford Foundation Center of Geriatric Nursing Excellence; 2011 Jul. 61 p.

## Adaptation

Not applicable: The guideline was not adapted from another source.

## Date Released

2002 Nov (revised 2011 Jul)

## Guideline Developer(s)

University of Iowa College of Nursing, John A. Hartford Foundation Center of Geriatric Nursing Excellence - Academic Institution

## Source(s) of Funding

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## Guideline Committee

University of Iowa Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core

## Composition of Group That Authored the Guideline

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*Series Editor*: Deborah Perry Schoenfelder, PhD, RN

## Financial Disclosures/Conflicts of Interest

Not stated

## Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Research Dissemination Core. Oral hygiene care for functionally dependent and cognitively impaired older adults. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center; 2002 Nov. 48 p.

## Guideline Availability

Electronic copies: Available for purchase on CD-ROM through The University of Iowa College of Nursing's John A. Hartford Center for Geriatric Excellence Web site .

Print copies: Available for purchase through The University of Iowa College of Nursing's John A. Hartford Center for Geriatric Excellence Web site .

## Availability of Companion Documents

The following is available:

- Oral hygiene care for functionally dependent and cognitively impaired older adults. Quick reference guide. Iowa City (IA): University of Iowa Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core; 2011.

Print copies: Available from the University of Iowa College of Nursing, John A. Hartford Foundation Center of Geriatric Nursing Excellence, 4118 Westlawn, Iowa City, IA 52242. For more information, please see the University of Iowa College of Nursing, John A. Hartford Foundation Center of Geriatric Nursing Excellence .

In addition, process and outcome factors are available in the original guideline document.

The appendices to the original guideline document contain various forms and assessment tools, such as the oral hygiene care plan, oral health knowledge assessment test, and process and outcome evaluation monitors.

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI on June 12, 2003. The information was verified by the guideline developer on July 18, 2003. This NGC summary was updated by ECRI Institute on December 7, 2011.

## Copyright Statement


This guideline was originally developed under the University of Iowa College of Nursing, Gerontological Nursing Interventions Research Center, Research Translation and Dissemination Core Grant #P30 NR03971 National Institute of Nursing Research.

# Disclaimer

## NGC Disclaimer